

REMARKS

Favorable reconsideration and withdrawal of the objections and rejections set forth in the above-mentioned Official Action in view of the foregoing amendments and the following remarks are respectfully requested.

Drawings

The drawings are objected to because Figure 10 should be designated by a legend such as --PRIOR ART--.

The drawings are also objected to as failing to comply with 37 C.F.R. § 1.84(p)(5) because they include reference characters “64”, “67”, “5c”, “Pc”, “1c”, “2c”, “3c”, “7c”, “T1c”, and “65a” which allegedly are not mentioned in the specification. It is noted that reference numeral “67” is mentioned at page 10, line 4 of the specification.

In addition, the drawings are objected to as failing to comply with 37 C.F.R. § 84(p)(5) because they do not include reference character “T”, which is mentioned in the specification.

Finally, the drawings are objected to because of their quality.

In response, a Submission of Corrected Sheets of the Drawings is being filed concurrently herewith in which the legend --PRIOR ART-- has been added to Figure 10. In addition, the specification has been amended *inter alia* to mention reference characters “Sc”, “Pc”, “1c”, “2c”, “3c”, “7c”, “T1c”, and “65c”. Reference character “T”, which is mentioned in the specification at page 24, line 3, merely refers to the toner image and is not a structural element. The specification has been amended to be more clear in this regard. The Examiner is kindly requested to reconsider and withdraw this objection. No new

matter has been added. It is respectfully submitted that the objections to the drawings has been overcome.

Abstract

The Abstract of the Disclosure is objected to because of its length and the inclusion of legal phraseology. In response, a new Abstract has been provided for the Examiner's consideration and approval.

Specification

The specification is objected to because of minor informalities noted by the Examiner. It appears that the errors may be attributable to scanning of the original application papers in the U.S. Patent and Trademark Office. (Applicants attorneys' file copy of the application do not show the errors noted by the Examiner.) In response, the specification has been "amended" to attend to any informalities, including those kindly identified by the Examiner, with respect to corresponding Patent Application Publication No. US 2004/031396 A1. It is respectfully submitted that no new matter has been added.

Claims Status

Claims 1 through 4, 6 through 9, and 11 through 20 are now pending in the application. Claims 5 and 10 have been canceled. Claims 1 through 4, 6 through 9, and 14 through 16 have been amended to even more succinctly define the invention and/or to improve their form. Claims 17 through 20 have been added to accord Applicants an additional scope of protection commensurate with the disclosure. It is respectfully submitted that no new matter has been added. Claims 1, 6, and 14 are the only independent claims pending in the application.

Claim Objections

The claims have been objected to for the reasons set forth in the Official Action. Again, it appears that the errors underlying the objection may be attributable to the scanning of the original application papers. In response, Claims 1, 4, 9, and 14 have been amended *inter alia* as proposed by the Examiner and/or otherwise to correct the informalities. It is respectfully submitted that the objections have been overcome.

Allowable Subject Matter

It is acknowledged with appreciation that Claims 3, 5, 12, and 13 are merely objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claims and any intervening claims. With the exception of Claim 5, which has been incorporated in Claim 1 and canceled, these claims remain in their dependent form, inasmuch as it is believed that Claims 1 and 6 from which they depend will be found to be allowable.

Art Rejections

Claims 1 and 2 are rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,574,442 (Kibune).

Claims 6, 8, 10, and 11 are rejected under 35 U.S.C. § 102(e) as being anticipated by Kibune.

Claims 6 through 11 are rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,801,728 (Taguchi, et al.).

Claims 1, 2, and 4 are rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,324,358 (Sahara) in view of U.S. Patent No. 6,529,695 (Katayanagi, et al.).

Claims 6, 7, 9, and 11 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Sahara in view of Katayanagi, et al.

Claims 14 and 15 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Sahara in view of Katayanagi, et al.

Claims 14 and 16 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Sahara in view of Kibune.

The rationale underlying each of the foregoing art rejections is succinctly set forth in the Official Action.

Response to Rejections

As above-noted, Claim 1 has been amended to include the allowable subject matter of Claim 5, which has been canceled. Accordingly, the rejection of Claim 1 and Claims 2 and 4, which depend therefrom is now moot and further comment on the rejection is not necessary.

The rejections of the remaining pending claims are respectfully traversed.

Amended Claim 6 calls for an image forming apparatus that includes a plurality of movable image carriers, the image carriers forming latent images upon exposure at respective exposing positions to form a toner image at the latent images; a movable intermediate transfer body, to which the toner image is transferred from the image carriers, for carrying the toner image; and contacting member separably contacting to the intermediate transfer body at a contacting position. The image carrier located most closely to the contacting position in a direction extending along the intermediate transfer body on a downstream side in a moving direction of the intermediate transfer body with respect to the contacting position, defines a first image carrier where a position for transfer between the

first image carrier and the intermediate transfer body defines a first transfer position. The image carrier located most closely to the contacting position in a direction extending along the intermediate transfer body on an upstream side in a moving direction of the intermediate transfer body with respect to the contacting position, defines a second image carrier where a position for transfer between the second image carrier and the intermediate transfer body defines a second transfer position. A toner image formed on the intermediate transfer body is transferred onto a transfer material after passing through the first transfer position and the second transfer position again. The formula $L_b + S_b \geq L_m$ is satisfied where a distance from the contacting position to the second transfer position along the moving route of the intermediate transfer body in a direction reverse to the moving direction of the intermediate transfer body is set as L_b , where a distance from the exposing position on the second image carrier to the second transfer position along the move of the second image carrier is set as S_b , and where an image length formed on the intermediate transfer body is set as L_m . The latent image formation on the second image carrier is done at a time different from a contacting operation of the contacting member.

Amended independent Claim 6 is characterized in that a latent image formation on the second image carrier is done at a time different from a contacting operation of the contacting member. According to this feature, any influence of the contacting operation, like vibration, is not transferred to the operation to form a latent image on the second image carrier.

The Examiner states that in column 10, lines 62 through 64 of Kibune discloses that “latent image formation on said second image carrier 26 is done at a time different from contacting operation of said contacting member”.

However, Kibune only discloses that remaining toner on an intermediate transfer body is cleaned after a toner image on the intermediate transfer body is transferred to a paper. This differs from amended Claim 6, which regulates a contacting timing of the contacting member. A cleaning operation by a belt cleaner 61 can be done simply when the cleaner 61 contacts with the belt 10 and the remaining toner will be carried with movement of the belt 10. This means, this operation can be realized even if the belt cleaner 61 contacts the belt 10 when a latent image is formed by the second image carrier. The above-noted portion of Kibune does not disclose that a latent image formation on the first image carrier is done at a time different from a contacting operation of the contacting member.

The Examiner notes that Taguchi, et al. discloses that a belt cleaner 33 and a secondary roller 35 shown in Fig. 1 are detachable.

It is respectfully submitted that there is no *direct* disclosure that belt cleaner 33 and a secondary roller 35 in Figure 12 are detachable. Applicants respectfully submit that there is no disclosure in Taguchi, et al. of an apparatus having plural image carriers having a contacting member separably contacting to an intermediate transfer body.

It cannot be assumed that the belt cleaner 33 and the secondary roller 35 shown in Figure 12 of Taguchi, et al. are detachable similar to like-numbered components in Fig. 1 for the following reasons.

In an image forming apparatus of Figure 1 of Taguchi, et al., a full color image cannot be formed without revolving the belt 31 with toner a plurality of times and the toner on the belt passes by the belt cleaner 33 and the secondary roller 35. For this reason it is necessary that the belt cleaner 33 and the secondary roller 35 move apart from the belt 31.

On the other hand, regarding an image forming apparatus of Figure 12 of Taguchi, et al., a full color image is formed with one revolution of the belt and there is no need for the belt cleaner 33 and the secondary roller 35 to move apart from the belt.

As above-noted, the same numerals are used to depict certain compounds in Figures 1 and 12. However, the reason for such may simply be that the belt cleaners 33 in both Figure 1 and Figure 12 are common in their function for cleaning toner on the intermediate body and the secondary rollers 35 are common in their function for transferring toner to the intermediate transfer body.

There is no clear disclosure in Taguchi, et al. that a toner image formed on the intermediate transfer body 31 is transferred onto a transfer material 4 after passing through a first transfer position and a second transfer position again.

Also, it cannot be assumed that the image forming apparatus in Figure 12 includes a first transfer position and the second transfer position having a function that a toner image formed on the intermediate transfer body is transferred onto a transfer material after passing through a transfer position, because a full color image can be formed with one revolution of the belt in the image forming apparatus of Figure 12.

It is respectfully submitted that amended Claim 6 is not anticipated by either Katayanagi, et al. or Taguchi, et al.

Claim 6 has been amended so as to include the subject matter of Claim 10. It is noted that Sahara and Katayanagi, et al. have not been applied against Claim 10.

Accordingly, the rejection of amended Claim 6 based on Sahara and Katayanagi, et al. no longer applies and further comment on Sahara and Katayanagi, et al. with respect to Claim 6 is not necessary.

Amended Claim 14 calls for an image forming apparatus that includes a plurality of movable image carriers, the image carriers forming latent images upon exposure at respective exposing positions to form a toner image at the latent images; a movable intermediate transfer body, to which the toner image is transferred from the image carriers, for carrying the toner image; and contacting member separably contacting to the intermediate transfer body. The image carrier located on an upstream side of the contacting member in a moving direction of the intermediate transfer body, among the plural image carriers, defines a first image carrier, whereas the image carrier located on a downstream side of the first image carrier in the moving direction of the intermediate transfer body, defines a second image carrier where a position for transfer between the first image carrier and the intermediate transfer body defines a first transfer position and where a position for transfer between the second image carrier and the intermediate transfer body defines a second transfer position. A toner image formed on the intermediate transfer body is transferred onto a transfer material after passing through the first transfer position and the second transfer position again. The formula $L_c + S_a - S_b \geq L_m$ is satisfied where a distance from the exposing position on the first image carrier to the first transfer position along the moving direction of the first image carrier is set as S_a , where a distance from the exposing position on the second image carrier to the second transfer position along the moving direction of the second image carrier is set as S_b , where a distance from the first transfer position to the second transfer position along the moving direction of the intermediate transfer body is set as L_c , and where an image length formed on the intermediate transfer body is set as L_m . The latent image formation on the first image

carrier, latent image formation on the second image carrier, and contacting operation of the contacting member are done at times different from each other.

Amended Claim 14 is characterized in a latent image formation on the first image carrier, a latent image formation on the second image carrier, and a contacting operation of the contacting means are done at times different from each other. According to this feature, effects such as vibration from contacting operation of the contacting member do not affect latent image formation on said second image carrier.

Claim 14 is rejected over the combined teachings of Sahara and Katayanagi, et al. However, neither Sahara nor Katayanagi, et al. disclose that a latent image formation on the first image carrier, a latent image formation on the second image carrier, and a contacting operation of said contacting means are done at times different from each other.

The Examiner asserts that Sahara discloses that a toner image formed on the intermediate transfer body 31 is transferred onto a transfer material P after passing through the first transfer position Td and the second transfer position Ta again. Applicants respectfully submit that no such disclosure is found in Sahara.

Further, the Examiner recognizes that Sahara does not disclose the claimed contacting means and relies on Katayanagi, et al. for allegedly showing this feature.

Independent Claim 14 is also rejected as being unpatentable over Sahara in view of Kibune. Again, the Examiner recognizes that Sahara does not disclose the claimed contacting means and relies upon Kibune for showing this feature. However, as noted above with respect to Claim 6, Kibune does not show the claimed contacting feature also recited in Claim 14.

It is also respectfully submitted that the combination rejections are not well founded. The Examiner has provided a *rationalization* for combining the teachings of the cited art based on the benefits of doing so. A combination rejection is proper only when there is some suggestion or motivation in the cited art *per se* to cause one having ordinary skill in the art to combine the teachings of the cited art. There is nothing in the cited art which supports the position that it can be combined in the manner suggested. Even if the art could be so combined, the mere fact that the art can be combined is not sufficient if there is no suggestions in the art that such a combination is desirable. For example, see ACS Hospital Systems, Inc. v. Montefiore Hospital, 221 U.S.P.Q. 929, 933 (Fed. Cir. 1984).

In view of the foregoing, it is respectfully submitted that amended independent Claims 6 and 14 also are allowable over the cited art whether taken individually or in combination.

Dependent Claims


Claims 2 through 4, 7 through 9, 11, 12, and 14 through 20 depend either directly or indirectly from one of Claims 1, 6, and 14 and are allowable by virtue of their dependency and in their own right for further defining Applicants' invention. Individual consideration of the dependent claims is respectfully requested.

Closing Comments

It is respectfully submitted that the pending claims are allowable over the art of record and that the application is in condition for allowance. Favorable reconsideration and early passage to issue of the present application are earnestly solicited.

Applicants' undersigned attorney may be reached in our Washington, D.C. office by telephone at (202) 530-1010. All correspondence should continue to be directed to our New York office at the address shown below.

Respectfully submitted,



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